

Claims

1. A palletless rack type parking system comprised of a plurality of racks having a loading fork and a stacker crane for loading a car onto or unloading from the rack, and the stacker crane having a transfer fork arranged in a right angel to the loading fork, the transfer fork moving up or down in respect to the loading fork, the palletless rack type parking system comprising:

plural fork bars arranged lengthwise with an interval to each other and with a right angle to an approaching direction of the car, and the fork bars comprising a front fork row for sustaining front wheels of the car and a rear fork row for sustaining rear wheels of the car, and the front fork row being spaced away from the rear fork row;

longitudinal beam arranged in a right angle against the fork bar, and supporting below the fork bar, so that an passage end of the fork bar takes a form of cantilever, and fixedly mounting each fork bar on the rack;

plural rollers being arranged in a proper interval in the fork bar and the roller's rotation center arranged along a width of the fork bar, the upper portion of the roller having an excessive protrusion above the top of the fork bar so as to allow wheels of the car to be rolling-contacted;

a floor covering above the longitudinal beam of the parking space except the fork bar row area; and

a position adjustment unit for transferring the car along the longitudinal direction of the fork bar so as to park the car on the accurate place.

2. The palletless rack type parking system according to claim 1, wherein: the fork bar has approximate U shape, and the roller is rotationally assembled at each longitudinal wall of the fork bar, and a plurality of foreign substance outlets is formed at the floor of the fork bar along a longitudinal direction.

3. The palletless rack type parking system according to claim 2, wherein: a cover is further provided on the top of the fork bar so as to prevent the entry of the

foreign substance.

4. The palletless rack type parking system according to claim 3, wherein: a support hole is formed at both longitudinal walls of the fork bar, an upper portion of the support hole is left open so as to support rotation of the roller's shaft, plural pushers are each longitudinal side of the cover covering the upper opening of the fork bar and perpendicularly push the shaft of the roller toward the lower portion of the longitudinal wall.

5. The palletless rack type parking system according to claim 1, wherein: the fork bar has approximate U shape, and the roller is rotationally assembled at each longitudinal wall of the fork bar, and a cover is provided on the top of the fork bar so as to prevent the entry of the foreign substance.

6. The palletless rack type parking system according to claim 1, wherein: the position adjustment unit is comprised of a pair of guide rails which are installed between two longitudinal beams being parallel to each other, a slider installed between the guide rails for making a reciprocation along the guide rail, plural push bars mounted on the slider in a right angle and projecting upright through the space between the fork bars, and for pushing wheels of the car in either a right or left direction, and an actuator for pushing the push bars.

7. The palletless rack type parking system according to claim 6, wherein: a halt tab is provided at a middle upper surface of the fork bar, by which the further sliding movement of the car is restricted when the car moves in a traverse.

8. The palletless rack type parking system according to claim 7, wherein: an auxiliary halt tab can additionally be installed at the upper exterior of the roller provided at the free end portion of the fork bar, by which excess sliding of the car is prevented.

9. The palletless rack type parking system according to claim 1, wherein: a projection tab is provided at the lower middle portion of the fork bar of the transfer fork with a proper height.

5        10. The palletless rack type parking system according to claim 1, wherein: a stopper is further provided for preventing the excessive entry of the car along the fork bar.

10       11. The palletless rack type parking system according to claim 10, wherein: the stopper is a wheel stop roll that is mounted on the floor between the front wheel and a front bump of the car, which contacts with the front wheel.

15       12. The palletless rack type parking system according to claim 11, wherein: the stopper is further provided a bumper wall having a proper height that is installed behind the wheel stop roll, which is in contact with the front bumper of the car.

20       13. The palletless rack type parking system according to claim 1, wherein: the fork bars are placed on two binder beams which have a channel form and are arranged in a right angle to the fork bar and spaced away in a parallel manner, and the binder beam is assembled with the longitudinal beam therethrough.

25       14. The palletless rack type parking system according to claim 1, wherein: a weight sensor is installed at the central portion of the longitudinal beam, by which the deflection owing to the load of the car is measured, by which makes decision whether or not the car is loaded or unloaded.